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<b>TRANSMITTAL FORM</b>  (to be used for all correspondence after initial filing)	Application Number	10/756,407	
	Filing Date	January 14, 2004	
	First Named Inventor	Kouta Fukui	
	Art Unit	1752	
	Examiner Name	Chea, Thorl	
Total Number of Pages in This Submission	24	Attorney Docket Number	FS-F03223-01

**ENCLOSURES (Check all that apply)**

<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts / Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input checked="" type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosure (s) ( please Identify below):
<b>Remarks</b>		

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Firm or Individual name	TAIYO CORPORATION Sheldon J. Moss, Reg. No. 52,053
Signature	
Date	October 26, 2007

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Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

**FEE TRANSMITTAL**  
**For FY 2006**☐ Applicant claims small entity status. See 37 CFR 1.27TOTAL AMOUNT OF PAYMENT (\$) **510.00****Complete if Known**

Application Number	10/756,407
Filing Date	January 14, 2004
First Named Inventor	Kouta Fukui
Examiner Name	Chea, Thorl
Art Unit	1752
Attorney Docket No.	FS-F03223-01

**METHOD OF PAYMENT (check all that apply)**☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify) : \_\_\_\_\_☒ Deposit Account Deposit Account Number 501322 Deposit Account Name: TAIYO, NAKAJIMA & KATO

For the above-identified deposit account, the Director is hereby authorized (check all that apply)

☒ Charge fee(s) indicated below☐ Charge fee(s) indicated below, except for the filing fee☒ Charge any additional fee(s) or underpayments of fee(s)  
under 37 CFR 1.16 and 1.17☒ Credit any overpayments

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**FEE CALCULATION (All the fees below are due upon filing or may subject to a surcharge.)****1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee(\$)	Small Entity Fee(\$)	Fee(\$)	Small Entity Fee(\$)	Fee(\$)	Small Entity Fee(\$)	
Utility	310	155	510	255	210	105	
Design	210	105	100	50	130	65	
Plant	210	105	310	155	160	80	
Reissue	310	155	510	255	620	310	
Provisional	210	105	0	0	0	0	

**2. EXCESS CLAIM FEES**

Fee Description	Small Entity Fee(\$)	Small Entity Fee(\$)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	210	105
Multiple dependent claims	370	185
<b>Total Claims</b>	<b>Extra Claims</b>	<b>Fee(\$)</b>
_____ - 20 or HP = _____ x _____ = _____		
HP=highest number of total claims paid for, if greater than 20.		
<b>Indep. Claims</b>	<b>Extra Claims</b>	<b>Fee(\$)</b>
_____ - 3 or HP = _____ x _____ = _____		
HP=highest number of independent claims paid for, if greater than 3.		

**3. APPLICATION SIZE FEE**

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52 (e)), the application size fee due is \$260 (\$130 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41 (a)(1)(G) and 37 CFR 1.16 (s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee(\$)	Fee Paid(\$)
_____ -100 = _____ / 50 = _____ (round up to a whole number) x 260 = _____				

**4. OTHER FEE ( \$ )**

Non-English Specification: \$ 130 fee (no small entity discount)

Other (e.g., late filing surcharge) : \_\_\_\_\_

Appeal Brief filing fee

510

**SUBMITTED BY**

Signature		Registration No.	52,053	Telephone	703-838-8013
Name ( Print/Type )	Sheldon J. Moss	Date	October 26, 2007		

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appln. No.: 10/756,407  
Applicant: Kouta Fukui  
Filed: January 14, 2004  
Title: PHOTOTHERMOGRAPHIC MATERIAL  
Art Unit: 1752  
Examiner: Thorl Chea  
Docket No.: FS-F03223-01

Confirmation No: 2618

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellant submits the following:

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**I. REAL PARTY IN INTEREST**

The real party in interest for the above-identified patent application on appeal is FUJIFILM Corporation, of Japan, the assignee. The assignment was previously submitted and was recorded on January 14, 2004 at Reel 014931, Frame 0527.

## **II. RELATED APPEALS AND INTERFERENCES**

To the knowledge and belief of Appellant, the Assignee, and the Appellant's legal representative, there are no other appeals or interferences before the Board of Appeals and Interferences that will directly affect or be affected by the Board's decision in the instant Appeal.

### **III. STATUS OF CLAIMS**

Claims 1-4, 6-7 and 10-19 are pending in the present application.

Claims 1-4, 6-7 and 10-19 stand rejected under 35 USC 103(a) as being unpatentable over the combination of EP 1168066 in view of Siga (US Patent No. 4,332,889) and Hirabayashi (US 2002/0123016).

No other ground of rejection or objection is currently pending.

A copy of the claims on appeal is set forth in an attached Appendix.

#### **IV. STATUS OF AMENDMENTS**

Currently no amendments are pending.

## **V. SUMMARY OF THE CLAIMED SUBJECT MATTER**

The summary of the invention on Appeal is provided as follows:

The present invention recited in independent claim 1 generally relates to a photothermographic material. More specifically, the invention relates to a photothermographic material excellent in image storability and improved film physical properties (see page 1, lines 8-10).

The invention recited in independent claim 1 is a photothermographic material that features a support, an image forming layer disposed on the support and containing a photosensitive silver halide, a non-photosensitive organic silver salt, a reducing agent, and a binder; and a silver-saving agent, wherein silver iodide is contained in the photosensitive silver halide in an amount of 40 to 100 mol%, (see page 5, lines 20-25). The photothermographic material also has requires that: an image gradation of an image obtained by heat development is 2 to 4 (see page 6, lines 9-11), the image gradation being expressed as the gradient between optical densities 2.0 and 0.25 of a characteristic curve as represented by the following equation:

$$\text{Gamma} = (\text{Optical density 2.0} - \text{Optical density 0.25}) / (\log (\text{Fog density} + \text{Exposure amount providing an optical density of 2.0}) - \log (\text{Fog density} + \text{Exposure amount providing an optical density of 0.25}))$$
 (see page 254, lines 20-25 to page 255, line 1), and wherein the photothermographic material is sensitive to a laser light source having a wavelength of 350 nm to 450 nm (see page 6, lines 20-23).



**VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 1-4, 6-7 and 10-19 stand rejected under 35 USC 103(a) as being unpatentable over the combination of EP 1168066 in view of Siga (US Patent No. 4,332,889) and Hirabayashi (US 2002/0123016).

## **VII. ARGUMENT**

### **A. The Rejection of Claims 1-4, 6-7 and 10-19 under 35 U.S.C. § 103(a) Should Be Reversed Because the Patent Office Has Failed to Overcome its *Prima Facie* Burden**

Claims 1-4, 6-7 and 10-19 stand rejected under 35 USC 103(a) as being unpatentable over the combination of EP 1168066 in view of Siga (US Patent No. 4,332,889) and Hirabayashi (US 2002/0123016).

#### **1. The combination of the cited references does not render the Appellant's invention obvious**

The photothermographic material of the present invention contains a photosensitive silver halide having a silver iodide content of 40-100 mol%, and is photosensitive to laser light having a wavelength of 350-450 nm. The photothermographic material of the present invention is designed to have an image gradation of 2 to 4. By having such a configuration, the photothermographic material of the present invention can increase the image density (Dmax) and prevent the deterioration of print-outs.

The above-mentioned unexpected effects of the present invention are apparent from the results of the Declaration of March 27, 2007. That is, the photothermographic materials 3a to 3d and 114a to 114d of the present invention increase the image density (Dmax) to levels higher than those attained by the corresponding comparative materials 1 and 113, respectively, and also prevent the deterioration of print-outs. This effect is unexpected even if Yanagisawa (EP '066), Siga, and Hirabayashi are combined.

In contrast, the comparative photothermographic materials 116a to 116d each having a silver iodide content of less than 40 mol% can increase the image density ( $D_{\max}$ ) to levels higher than those attained by the comparative photothermographic material 115, but they cause significant deterioration of print-outs.

Similarly, the comparative photothermographic materials 118a to 118d each having a silver iodide content of less than 40% can increase the image density ( $D_{\max}$ ) to levels higher than those attained by the comparative photothermographic material 117, but cause significant deterioration of print-outs.

Moreover, Siga neither teaches nor suggests the effect of preventing deterioration of print-outs, i.e., preventing an increase in fogging caused by light during storage of an image-formed (thermally-developed) photothermographic material.

## **2. The cited references have been improperly combined**

### **A. No motivation to combine Hirabayashi**

As Appellant pointed out on pages 11-12 of the Response dated September 20, 2006, Hirabayashi discloses photothermographic materials in the Examples section having a gradation with a  $\gamma$  value of 5.0 - 20.3. On the other hand, the present invention is characterized by having a gradation of 2-4 and relates to a photothermographic material suitable for medical applications. The photothermographic material of the present invention thus belongs to a different technical field from that of a photothermographic material for printing purposes, which has a higher  $\gamma$  value. Accordingly, Hirabayashi does not teach the present invention, whether taken

individually or in combination with other references, since the object and effect of the invention are different from those of the cited references.

B. No motivation to combine Siga

There is no motivation to combine the disclosure of Siga with the cited references, namely either EP '066 or Hirabayashi. Siga discloses a post-activation type photothermographic material, which is non-photosensitive under normal lighting conditions and must be heated in order to become photosensitive (activated). In contrast, the photothermographic material of the present invention, along with EP '066 and Hirabayashi, is a conventional type, which requires no pre-heating. A post-activation type photothermographic material is different from a conventional type in terms of image forming mechanism and components.

Additionally, the following sentences are cited from Siga in column 2, lines 20-30 in order to further illustrate the differences between post-activation materials and conventional photothermographic materials:

It is particularly noted that post-activation type dry image forming materials, which are required to be capable of being exposed to or stored under normal lighting conditions substantially without undergoing deterioration in their photographic or sensitometric characteristics, are quite different in conditions of storage and image formation from the wet process photographic material and even common heat-developable dry image forming materials of the already photosensitive type which are never exposed to light prior to use in image formation.

Due to the many differences in image forming mechanism and the components, one of ordinary skill in the art would not have been motivated to combine Siga with either EP '066 or Hirabayashi.

**VIII. CONCLUSION**

Appellant submits that the Patent Office has failed to overcome its *prima facie* burden with respect to the rejections of claims 1-4, 6-7 and 10-19 under 35 U.S.C. § 103(a). Accordingly, Appellant respectfully submits that the rejections of the pending claims are erroneous in law and in fact and should therefore be reversed by this Board.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Sheldon J. Moss". The signature is written in a cursive, flowing style with some loops and flourishes.

---

Sheldon J. Moss  
Reg. No. 52,053

Taiyo, Nakajima & Kato  
401 Holland Lane, Suite 407  
Alexandria, VA 22314  
(703) 838-8013

2007-10-26

**CLAIMS APPENDIX**

CLAIMS 1-4, 6-7 and 10-19 ON APPEAL:

1. A photothermographic material, comprising:

a support;

an image forming layer disposed on the support and containing a photosensitive silver halide, a non-photosensitive organic silver salt, a reducing agent, and a binder; and

a silver-saving agent,

wherein silver iodide is contained in the photosensitive silver halide in an amount of 40 to 100 mol%,

wherein an image gradation of an image obtained by heat development is 2 to 4, the image gradation being expressed as the gradient between optical densities 2.0 and 0.25 of a characteristic curve as represented by the following equation:

$$\text{Gamma} = (\text{Optical density 2.0} - \text{Optical density 0.25}) / (\log (\text{Fog density} + \text{Exposure amount providing an optical density of 2.0}) - \log (\text{Fog density} + \text{Exposure amount providing an optical density of 0.25})), \text{ and}$$

wherein the photothermographic material is sensitive to a laser light source having a wavelength of 350 nm to 450 nm.

2. The photothermographic material of claim 1, wherein the image forming layer has a multilayered structure comprising at least a first image forming layer and a second image

forming layer, and at least the first image forming layer contains the silver-saving agent, and the second image forming layer does not contain the silver-saving agent.

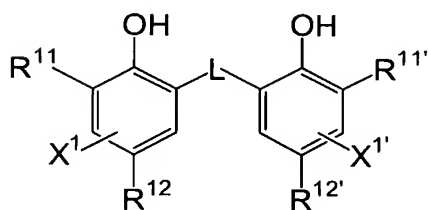
3. The photothermographic material of claim 2, wherein the first image forming layer containing the silver-saving agent is disposed closer to the support, and the second image forming layer not containing the silver-saving agent is disposed more distant from the support.

4. The photothermographic material of claim 2, wherein the first image forming layer containing the silver-saving agent is disposed more distant from the support, and the second image forming layer not containing the silver-saving agent is disposed closer to the support.

5. (Cancelled.)

6. The photothermographic material of claim 1, wherein the reducing agent contains a compound represented by the following formula (R):

Formula (R)





wherein  $R^{11}$  and  $R^{11'}$  each independently represent an alkyl group having 3 to 20 carbon atoms, in which a carbon atom bonding with a benzene ring is secondary or tertiary;  $R^{12}$  and  $R^{12'}$  each independently represent a hydrogen atom or a group capable of being substituted on the benzene ring; L represents -S- or -CHR<sup>13</sup>, in which  $R^{13}$  represents a hydrogen atom or an alkyl group having 1 to 20 carbon atoms; and  $X^1$  and  $X^{1'}$  each independently represent a hydrogen atom or a group capable of being substituted on the benzene ring.

7. The photothermographic material of claim 1, further comprising a development accelerator.

8. (Canceled.)

9. (Canceled.)

10. The photothermographic material of claim 1, wherein the laser light source is a blue semiconductor laser.

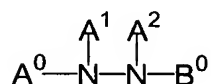
11. The photothermographic material of claim 1, wherein a total amount of coated silver including the photosensitive silver halide and the non-photosensitive organic silver salt is 0.1 to 3.0 g/m<sup>2</sup>.

12. The photothermographic material of claim 1, wherein the reducing agent is contained in an amount of 0.1 to 3.0 g/m<sup>2</sup>.

13. The photothermographic material of claim 1, wherein the reducing agent is contained in the image forming layer in an amount of 5 to 50 mol% per mole of silver on a surface having the image forming layer.

14. The photothermographic material of claim 1, wherein the silver-saving agent is a hydrazine derivative compound represented by the following formula (V):

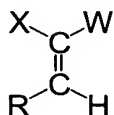
Formula (V)



wherein A<sup>0</sup> represents an aliphatic group, an aromatic group, a heterocyclic group, or -G<sup>0</sup>-D<sup>0</sup>, each of which may have a substituent; B<sup>0</sup> represents a blocking group; one of A<sup>1</sup> and A<sup>2</sup> represents a hydrogen atom and the other represents a hydrogen atom, an acyl group, a sulfonyl group, or an oxalyl group; G<sup>0</sup> represents -CO-, -COCO-, -CS-, -C(=NG<sup>1</sup>D<sup>1</sup>)-, -SO-, -SO<sub>2</sub>-, or -P(O)(G<sup>1</sup>D<sup>1</sup>)-, in which G<sup>1</sup> represents a single bond, -O-, -S-, or -N(D<sup>1</sup>)-, and D<sup>1</sup> represents an aliphatic group, an aromatic group, a heterocyclic group, or a hydrogen atom; and D<sup>0</sup> represents one selected from the group consisting of a hydrogen atom, an aliphatic group, an aromatic group, a heterocyclic group, an amino group, an alkoxy group, an aryloxy group, an alkylthio group, and an arylthio group.

15. The photothermographic material of claim 1, wherein the silver-saving agent is a vinyl compound represented by the following formula (VI):

Formula (VI)

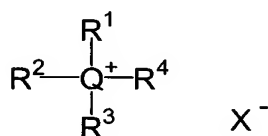


wherein X represents an electron attracting group; W represents one selected from the group consisting of a hydrogen atom, an alkyl group, an alkenyl group, an alkynyl group, an aryl group, a heterocyclic group, a halogen atom, an acyl group, a thioacyl group, an oxalyl group, an oxyoxalyl group, a thiooxalyl group, an oxamoyl group, an oxycarbonyl group, a thiocarbonyl group, a carbamoyl group, a thiocarbamoyl group, a sulfonyl group, a sulfinyl group, an oxysulfinyl group, a thiosulfinyl group, a sulfamoyl group, an oxysulfinyl group, a thiosulfinyl group, a sulfinamoyl group, a phosphoryl group, a nitro group, an imino group, an N-carbonylimino group, an N-sulfinylimino group, a dicyanoethylene group, an ammonium group, a sulfonium group, a phosphonium group, a pyrylium group, and an immonium group; R represents one selected from the group consisting of a halogen atom, a hydroxyl group, an alkoxy group, an aryloxy group, a heterocyclic oxy group, an alkenyloxy group, an acyloxy group, an alkoxycarbonyloxy group, an aminocarbonyloxy group, a mercapto group, an alkylthio group, an arylthio group, a heterocyclic thio group, an alkenylthio group, an acylthio group, an alkoxycarbonylthio group, an aminocarbonylthio group, an organic or inorganic salt of a

hydroxyl group or a mercapto group, an amino group, an alkylamino group, a cyclic amino group, an acylamino group, an oxycarbonylamino group, a heterocyclic group, a ureido group, and a sulfonamido group; and X and W, and X and R may bond with each other to form a ring.

16. The photothermographic material of claim 1, wherein the silver-saving agent is a quaternary onium compound represented by the following formula (VII):

Formula (VII)



wherein Q represents a nitrogen atom or a phosphorus atom;  $\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$ , and  $\text{R}^4$  each independently represent one selected from the group consisting of a hydrogen atom, an alkyl group, an alkenyl group, an alkynyl group, an aryl group, a heterocyclic group, and an amino group;  $\text{X}^-$  represents an anion; and  $\text{R}^1$  to  $\text{R}^4$  may bond with each other to form a ring.

17. The photothermographic material of claim 1, wherein the silver-saving agent is contained in the image forming layer or a layer adjacent to the image forming layer in an amount of  $10^{-5}$  to 1 mol per mole of the non-photosensitive organic silver salt.

18. The photothermographic material of claim 1,

wherein the silver iodide is contained in the photosensitive silver halide in an amount of 80 to 100 mol%.

19. The photothermographic material of claim 1,  
wherein the silver iodide is contained in the photosensitive silver halide in an amount of 90 to 100 mol%.

**EVIDENCE APPENDIX**

None.

**RELATED PROCEEDINGS APPENDIX**

None.